

09680

Vol. II - Issue 2

April 1978

CHOICES IN CARPET

Tufted carpet is constructed on a machine with numerous needles extending the full width of the machine inserting the carpet fiber through a fabric backing on the principle of a sewing machine.

Woven carpet is constructed on a loom. Velvet, wilton and axminster are three basic machine techniques for weaving.

Tufted carpet is less expensive than woven carpet but careful consideration must be given to tuft-bind which is the force required to pull out a tuft or one leg of a loop. When the tuft-bind is exceeded, it is possible to develop a "run" in the carpet similar to a "run" in hosiery.

To judge the relative quality of carpet manufactured of the same fiber, consider face weight, pile height and density.

Pile fibers most commonly used in carpet manufacturing are: acrylic, nylon, olefin (polypropylene,) polyester and wool.

Do not compare the face weights of one yarn to another because of variables in their characteristics.

Acrylics most closely resemble wool with their soft look and feel. Weight for weight, acrylics do not have the wearability of nylon. Modacrylics, acrylics that have been treated with modifying chemicals, are lightweight and high bulking, having superior flame resistance and excellent acid resistance and soil resistance.

Nylon has excellent wearability. Continuous filament fibers are recommended for heavy traffic areas because of their greater strength and resistance to pilling. Staple fibers (shorter lengths) are used to achieve greater density and textural variety. Nylon tends to build up static charges which can be dissipated by incorporating anti-static fibers into the fabric. Although nylon soils easily, it cleans easily, as well.

Olefin or polypropylene offers no static build-up, has excellent stain resistance, strength, durability, color fastness and low moisture absorption. Olefins have the lowest melting point of all man-made fibers and, while not regarded as flammable, are highly vulnerable to breakdown from ash and cigarette burns. Olefin is resistant to more chemicals than any other fiber but has poor texture retention and poor resiliency. Olefins are well suited for use as outdoor carpeting.

Polyesters have excellent strength, abrasion resistance, color fastness, minimum static build-up and ease of maintenance. Due to their very poor long-term resiliency, polyesters are usually used in combination with other fibers. The best application for all-polyester carpet is in shag form.

Wool has excellent color, soil resistance, resiliency, bulk, strength, dyeability, crush resistance and flame resistance. Its major drawback is its relatively high cost.

Backing yarns for woven carpets are woven together as the carpet is made. Fibers generally used are jute, kraftcord, polyester, polypropylene, cotton and rayon.

In tufted carpet, a preformed back is used. Pile yarns are stitched, imbedded or bonded to this primary backing. Primary backs may be woven of jute or polypropylene, or non-woven of a choice of natural or synthetic fibers. To insure tuft bond and inhibit yarns from pulling out, a secondary backing or coating is applied. The back coating is usually a latex compound and secondary backs are usually high density foam bonded or laminated to the carpet.

A performance specification defines the characteristics of the carpet without detailing the method of manufacture. Performance specifications require standards against which performance can be judged. Testing and evaluation procedures generally used by manufacturers are:

ASTM D-418	Pile Weight (finished carpet)
ASTM D-418	Pile Thickness
ASTM D-418	Tuft Height
ASTM D-2859	Flammability
ASTM D-1335	Tuft Bind
DDD-C95A	Delamination
AATCC 16E	Colorfastness to Light
AATCC 8	Resistance to Crocking
ASTM D1116	Moth Repellency (wool only)

Construction specifications prescribe how a carpet is to be manufactured, giving consideration to the following:

1. Construction type: Tufted, woven, knitted
2. Pitch or gage: In woven carpet pitch is the number of ends of yarn in 27 inches of width. In tufted carpets gage indicates the number ends of surface yarn per inch across the carpet.
3. Wires or stitches per inch: Wires per inch express the number of crosswise units along the length of a woven carpet. Stitch is the number of lengthwise yarn tufts in one inch of tufted carpet.
4. Pile height or wire height: The height of pile measured from the surface of the back to the top of the pile.
5. Pile fiber: Acrylic, nylon, olefin, polyester, wool.
6. Face weight: Weight per square yard of pile fiber without backing.
7. Backing material: Type and weight per square yard. Specify type and weight of primary and secondary backing or back coating for tufted carpet.
8. Finished weight per square yard: Total weight.
9. Type of installation: Tackless or glue-down.
10. Cushion type or grade if required.